Application For
The Erie County Executive Energy Achievement Award

Name of the Project: Canisius College Energy Conservation Project

Name of organization: Canisius College

Address: Canisius College
2001 Main Street
Buffalo, New York 14208

Contact Name: Mr. Gary Lew, Senior Facilities Manager

Contact Person Telephone Number: 716/888-2255

Dates of project Inception and Completion: January 2004 to December 2004

Describe the condition that first caused the project to be considered:
Canisius College's electrical utility costs were on an annual upward trend due to the College's increasing electricity consumption. While part of this cost increase was attributed to the increase in building space, the College assumed that other factors were contributing, as well. Thus this project originated from an economic need to stop the trend of annual increases in electrical consumption, and therefore utility costs.

Responses to required questions:

- **What was the initial goal of the project?**
  The initial goal of the project was to identify methods by which to reduce campus-wide electrical energy consumption by 5%.

- **Was renewable energy technology considered for the project and how?**
  Renewable energy was not considered for this project, as the goal was electrical use reduction, regardless of the method by which it was generated.

- **What steps were taken to achieve the goal?**
  Canisius College chose to undertake a comprehensive electrical energy reduction project to address the 18 primary campus buildings. This project addressed only electrical energy so that it was eligible for a cost sharing opportunity offered by the New York State Energy Research and Development Authority (NYSERDA). The project consisted of defining the baseline energy consumption, identifying how electrical energy is used within each of 18 campus buildings (building profile), identifying current energy conservation opportunities, analyzing the building automation system (BAS) operation; and creating and implementing an energy use reduction awareness program. Ecology & Environment, Inc. (E & E) of Lancaster, New York, was retained to execute the work

scope. E & E began developing baseline by analyzing the previous 3 years of electrical utility invoice, then conducted a process to normalize the energy consumption data to account for varying weather conditions between the baseline years. This critical step formed the baseline against which the College can now measure savings not only from this project, but from future efforts, as well.

The next step included conducting a series of building surveys to identify incremental efforts that collectively offer measurable energy conservation at no or low cost. These energy conservation measures (ECMs) mainly included changes in lighting and equipment operation and control. Through these surveys, E & E also determined the ways in which electricity is used in each building. This end-use data was used to generate building energy consumption profiles. E & E also analyzed the building automation system (BAS) operation with respect to building use schedules and temperature set points. E & E then performed extensive engineering analysis of this data, along with building energy use profile data, and determined that significant energy savings could be realized through system adjustment, without incurring new equipment capital costs.

An awareness effort, entitled Canisius College Conserves Energy (C3E) was created to raise the campus community's level of energy conservation awareness. This program involved making presentations regarding the program to all Deans at their Department Chair meetings; many of the faculty; several student organizations; and to the Resident Assistants. All of these presentations included a short list of simple steps that the audience could undertake, and pass along to others, as well. A media component consisting of articles in the College's on-line news source, The Net Gazette, provided an avenue to continue outreach to campus community. A series of C3E web page were created through the efforts of graduate students in a technology applications class. They were provided the core facts, and they developed the web pages and links to inform fellow students not only about the program, but about the environmental benefits of the program to Canisius College and to the Western New York Community. This hands-on student involvement was another tool to foster additional interest from fellow classmates and other campus members.

A key element within the awareness program was the establishment of a College Energy Policy. Endorsed by the College President on Earth Day, 2004, this policy provided the necessary demonstration of the College's upper management commitment to energy conservation.

A report detailing the project findings was prepared. It presents the baseline energy consumption data, and provides a valuable building block to the College as it is the basis to which future normalized electricity consumption data can be compared. In addition, the report presents the energy consumption profiles and end use summaries by building, allowing the College to estimate energy conservation impacts that could be realized from various equipment changes. An ECM inventory, including data on the electrical energy

reduction that would result from each ECM's implementation, as well as implementation cost and the cost savings that could be achieved, is also presented.

- **What were the obstacles to completion of the project?**
  One obstacle was the need for the campus community to know that energy conservation as a practice was neither temporary nor voluntary; it had become an obligation bestowed upon all campus community members, and the practices were to become permanent. The establishment and endorsement of an energy policy approved by the College President proved to be an effective tool to achieve the needed credibility. Since this policy was not previously developed prior to the start of the program, obtaining campus community participation was slow until the credibility was built.

- **What support did the project receive?**
  The project received upper-level administrative support (Vice President of Finance) at inception. The Facilities Department's Senior Facilities Manager was assigned to be the project manager. He was the project's liaison with numerous Deans, faculty, and student groups.

  Financial support was received from the College and from the New York State Energy Research and Development Authority (NYSERDA), who shared in 50% of the costs.

  Ecology & Environment, Inc. of Lancaster, New York conducted the project. They provided not only the engineering-based services, but they also planned and did the initial implementation of the entire awareness program, C3E.

- **What was the projected pay-back period for the project?**
  Savings were determined to be achievable in three areas. Savings from the Awareness efforts and from building control system analysis and tuning were received immediately. More than 98% of the savings were determined to have a payback period of 2 years or less. Approximately 30% of the savings could be achieved from ECMs requiring no capital cost; they only required minor effort to achieve the available energy conservation.

- **Is the pay-back on target?**
  The payback for awareness is on target. ECM implementation will be performed by a contractor; thus it has not yet been conducted. Building automation system optimization was completed.

- **What are the results of the project? (such as: reduction in energy use, reduction of emissions, reduction in utility cost, etc.)**
  There are several tangible results to this project. First, due to awareness and some minor adjustment to the BAS, the College has achieved a 5% reduction in overall electrical energy use as compared to the consumption baseline. Based on 2004 energy costs, this translates to a savings of approximately $90,000 for the College.

Two other major accomplishments of this project are the development and emplacement of an Energy Policy and an energy conservation awareness program. These are two tools that will work together to continue the College's energy conservation efforts in the future. They will also serve the Western New York community as our graduates will remember the Awareness program messages long after graduating.

- **What would you do differently on the next energy project?**
  We would work to gather greater students/staff awareness from the start. The positive public relations that can be reaped from undertaking this type of project are significant due to the large positive impact it has on the Western New York community. For example, reducing electricity demand reduces the need to be generating so much power, some of which is from fossil fuel burning. Furthermore, the project has taught many of our students the importance of accounting for energy costs when planning a budget.

- **What do you or your organization consider the most positive secondary outcome from the project?**
  Now that we know how much we can save from applying this unique approach to electricity usage, we now have an understanding of the significant potential benefit to us from conducting a similar project for natural gas reduction opportunities.

- **Are you currently purchasing any "green" energy?**
  No, we are not purchasing green energy at this time.

- **How will you or your organization be willing to mentor others in starting an energy conservation project?**
  We would be very willing to host an evening seminar at the College to discuss how to establish a program, what the requirements of the entity are, and some of our "lessons learned". As a community leader in the energy conservation arena, we have responsibility for stimulating energy conservation efforts at other colleges, as well as local businesses and school districts. Conserving energy benefits these local entities by helping them decrease their energy costs, which in turn helps preserve jobs in our community and maintain a high-quality educational atmosphere. Furthermore, on a national level, promoting cutting-edge approaches to energy conservation helps publicize Western New York attractively; reduces generation of air pollution, and helps reduce our nation's dependence on foreign energy .

- **May we post/publish your project on our web site?**
  Yes, we'd be honored to have this project published.